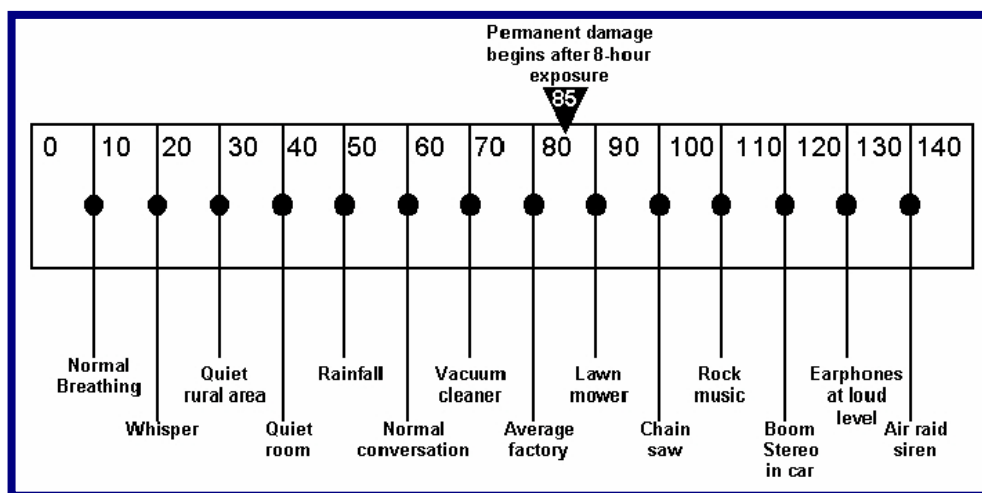


Syracuse Road; Noise Handout 1000 West to 2000 West

February 2006

Noise Levels

Traffic noise levels are measured in A-weighted decibels (dBA), which approximate the way the human ear hears sounds at different frequencies. The A-scale emphasizes the higher frequency noise content since it is more annoying to the human ear. Since traffic noise varies over time, sound levels are expressed as "equivalent levels" or L(eq) and are representative of the average sound level. The figure below shows the noise levels of common sounds for reference.



Threshold Values for Noise Abatement

| Activity Category | Leq (h), dBA | Address/Location |
|-------------------|---------------|--|
| A | 55 (Exterior) | Lands on which serenity and quiet are of extraordinary significance and serve an important public need and where the preservation of those qualities is essential if the area is to continue to serve its intended purpose |
| B | 65 (Exterior) | Picnic areas, recreation areas, playgrounds, active sports areas, parks, residences , motels, hotels, schools, churches, libraries and hospitals |
| C | 70 (Exterior) | Developed lands, properties, or activities not included in Categories A or B above |
| D | -- | Undeveloped lands |
| E Interior | 50 (Interior) | Residences, motels, hotels, public meetings rooms, schools, churches, libraries, hospitals, and auditoriums |

UDOT has defined a level of 65 dBA to be the threshold for the consideration of noise abatement for residences and a level of 70 dBA to be the threshold for the consideration of noise abatement for businesses.



Noise Impact

A noise impact is identified if:

A residence is impacted by a noise level of 65 dBA and a business is impacted by a noise level of 70 dBA

OR

The noise level exceeds the existing noise level by 10 dBA or more (A 10 dBA increase is perceived by most people as a doubling of noise loudness).

| Sound Level Change | Relative Loudness |
|--------------------|----------------------------|
| 1 dBA | No perceptible change |
| 3 dBA | Barely perceptible change |
| 5 dBA | Readily perceptible change |
| 10 dBA | Perceived as twice as loud |

Noise Abatement

If a noise impact is identified, the following abatement measures shall be considered:

- Traffic management measures
- Horizontal and/or vertical alignment shifts
- Construction of berms and associated landscaping
- Noise barrier abatement options (Noise Walls)
- Noise insulation of public use or nonprofit institutional structures

Noise Walls

- For a sound wall to be effective, it must be high enough and long enough to block the view of the road. The *Highway Traffic Noise Analysis and Abatement Policy and Guidance* published by the U.S. Department of Transportation states that a good rule of thumb is that the noise barrier should extend four times as far in each direction as the distance from the receiver to the barrier. For instance, if the receiver is 50 feet from the proposed sound wall, the wall should extend at least 200 feet on either side of the receiver in order to be most effective (Note: this is not always practical because of space constraints).
- Openings in sound walls for driveway connections or intersecting streets destroy the effectiveness of barriers. Therefore, homes with direct access onto the roadway do not qualify for sound walls.
- The UDOT Noise Abatement Policy states that "the maximum cost used to determine reasonableness to provide noise abatement will be \$25,000 per benefited receiver."
- The UDOT Noise Abatement Policy also requires that sound walls achieve at least a 5 dBA reduction at the majority of front-row (adjacent) receivers.
- Where noise walls are feasible and reasonable for noise abatement, UDOT will contact the property owners of record for the purpose of balloting.
- Noise walls will be considered if the combination of 75% of the "impacted front row (adjacent) receivers" and 67% overall (including front row receivers) of the "impacted residents/landowners" who receive a 5 dBA noise reduction, vote, through balloting, in favor of the wall.
- **If the impacted property owners vote to reject construction of a noise wall, their area will not be reconsidered for future noise abatement measures unless a future Type I transportation project occurs.**

Project Contacts

If you have any questions or comments about this project please contact one of the following individuals:

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| HORROCKS ENGINEERS | Nicole Tolley Public Involvement Specialist 801-763-5154 (in American Fork, UT) 1-800-662-1644 (Toll Free) nicolet@horrocks.com |
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| UDOT | Charles Mace Project Manager 801-620-1685 (in Ogden, UT) cmace@utah.gov |
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| FHWA | Jeff Berna Federal Highway Administration (801) 963-0078 Jeffrey.Berna@fhwa.dot.gov |
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www.udot.utah.gov/syracuseroad